

AMENDMENTS TO THE CLAIMS

Amendments to the Claims

This listing of claims will replace all prior listings in this application.

Listing of Claims:

1. (Currently amended) A method of fabricating a thin layer, in which a weak buried region is created by implanting a chemical species in a substrate in order to thereafter initiate a fracture of said substrate along said weak region to detach said thin layer therefrom, said method comprising:

- a) implanting a first chemical species in the substrate at a first depth;
- b) implanting at least one second chemical species, in the substrate at a ~~[[second-depth]]~~ second depth different from said first depth and at a ~~an atomic~~ concentration higher than the atomic concentration of said first chemical species, wherein said at least one second chemical species is less effective than said first chemical species at weakening the substrate, and wherein steps a) and b) can be executed in either order;
- c) diffusing at least a portion of said at least ~~[[one-second]]~~ one second chemical species from said second depth to the vicinity of said first depth, and
- d) initiating said fracture along said first depth.

2. (Previously presented) A fabrication method according to claim 1, wherein said second depth is greater than said first depth.

3. (Previously presented) A fabrication method according to claim 1, wherein said second depth is less than said first depth.

4. (Previously presented) A fabrication method according to claim 2, wherein implanting at least one second chemical species is carried out before implanting said first chemical species.

5. (Previously presented) A fabrication method according to claim 1, wherein

said diffusing at least a portion of said second chemical species further comprises applying a heat treatment.

6. (Previously presented) A fabrication method according to claim 1, wherein initiating said fracture further comprises applying a heat treatment.

7. (Previously presented) A fabrication method according to claim 5, wherein steps c) and d) are carried out simultaneously.

8. (Currently amended) A fabrication method according to claim 5, wherein applying said heat treatment comprises carrying out said heat treatment within a first thermal budget, wherein the first thermal budget is lower than a second thermal budget that which would be necessary to initiate said fracture in the absence of steps b) and c).

9. (Previously presented) A fabrication method according to claim 5, wherein applying said heat treatment comprises carrying out said heat treatment within a predetermined first thermal budget is complied with, by implanting an additional amount of said at least one second chemical species, such that said first thermal budget is lower than a second thermal budget required in the absence of said additional amount of said at least one second chemical species.

10. (Previously presented) A fabrication method according to claim 5, wherein applying said heat treatment comprises one or more of heating in a furnace, heating, or laser heating.

11. (Previously presented) A fabrication method according to wherein initiating said fracture includes applying mechanical stresses.

12. (Previously presented) A fabrication method according to claim 11, wherein applying said mechanical stresses comprises one or more of applying a jet of fluid, inserting a blade into the implanted region, applying traction, applying shear or bending stresses to the substrate, or applying acoustic waves.

13. (Previously presented) A fabrication method according to claim 1, wherein, before or during initiating said fracture, a thickener is applied to said substrate to serve as a support for said thin layer after said fracture of said thin layer from said substrate.

14. (Previously presented) A fabrication method according to claim 1, wherein, before or during initiating said fracture, a handle support is applied to said substrate, after which said thin layer is transferred onto a final support.

15. (Currently amended) A fabrication method according to claim 1 wherein said first chemical species comprises ~~O~~hydrogen hydrogen ions.

16. (Currently amended) A fabrication method according to claim 1, wherein said at least one second chemical species comprises at least one rare gas.

17. (Previously presented) A thin layer fabricated by a method according to claim 1.

18. (Currently amended) A thin layer ~~(6)~~ according to claim 17, further comprising ~~one of a flexible or rigid support underlying~~ said thin layer.

19. (Previously presented) A fabrication method according to claim 3, wherein implanting at least one second chemical species is carried out before implanting said first chemical species.

20. (Previously presented) A fabrication method according to according to claim 6, wherein steps c) and d) are carried out simultaneously.

21. (Currently amended) A fabrication method according to according to claim 6, wherein applying said heat treatment comprises carrying out said heat treatment within a first thermal budget, wherein said first thermal budget is lower than a second thermal budget that ~~which would be necessary to initiate said fracture in the absence of~~ steps b) and c).

22. (Currently amended) A fabrication method according to according to claim

7, wherein applying said heat treatment comprises carrying out said heat treatment within a first thermal budget, wherein said first thermal budget is lower than a second thermal budget that ~~which~~-would be necessary to initiate said fracture in the absence of steps b) and c).

23. (New) A method of fabricating a thin layer, in which a weak buried region is created by implanting a chemical species in a substrate in order to thereafter initiate a fracture of said substrate along said weak region to detach said thin layer therefrom, said method comprising:

- a) implanting a first chemical species in the substrate at a first depth;
- b) implanting at least one second chemical species, in the substrate at a second-depth different from said first depth and at a concentration higher than the concentration of said first chemical species,

wherein said at least one second chemical species is less effective than said first chemical species at weakening the substrate, and

wherein steps a) and b) can be executed in either order;

- c) diffusing at least a portion of said at least one-second chemical species from said second depth to the vicinity of said first depth, and

- d) initiating said fracture along said first depth,

wherein the method is carried out by either applying a heat treatment for less time and at a lower temperature than that necessary in the absence of step b), or by implanting an additional amount of said at least one second chemical species to avoid exceeding a predetermined time/temperature regime.